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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,991

12/08/2003

Haruhisa Masuda

246245US0

2812

22850

7590

11/15/2006

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EXAMINER

MULLIS, JEFFREY C

ART UNIT

PAPER NUMBER

1711

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/728,991

Applicant(s)

MASUDA ET AL.

Examiner

Jeffrey C. Mullis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 5-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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Claims 17-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Particle diameters exist as a distribution of sizes and for this reason particle diameters express without qualification as to the type of distribution (i.e. number or weight average particle diameters (as well as lengths) are unclear as the diameter will vary depending on the type of statistical distribution intended and as lengths and diameters are unclear where unqualified as to the type of distribution, applicants L/D ratio is also unclear. Furthermore, it is not even clear that the L/D ratios recited are even meant to be average values (as this is not stated) and for this reason it would never be clear if a sample of material had applicants L/D ratio in that only infinitely sensitive instrumentation or technique would be capable of detecting every single particle to determine if even one possessed applicants characteristic.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraki et al (US 5,332,784) in view of Mehra (US 5700412) and optionally Patel et al. (US 5621045), Ilenda et al. (US 5229456) and Allcock et al (US 5,965,627).

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Patentees disclose a composition containing a styrenic block copolymer and ethylene vinyl alcohol block copolymer (Example 80 in column 41). Plasticizing oil may be added to the composition at column 25, lines 50-55 at a level of 30 parts per 100 parts of block copolymer (column 29, lines 25-30). The material may be formed into layers at column 26, lines 39-41.

Mehra (US 5700412) discloses that barrier resin may be present as domains within the matrix it is in and that the shape of the domains is not critical (note column 2, lines 61-64).

Ilenda et al. (US 5229456) discloses that effective domain size in a compatibilized polyolefin blend is 0.43 microns at column 42, lines 4-10).

Patel et al. (US 5621045) at column 4, lines 35-40 disclose that compatibilizer reduces domain size and increases mechanical properties while (Allcock US 5965627) at column 2, lines 1-10 has a similar disclosure.

No Examples exist showing all of applicants 3 required materials in applicants' amounts. However, selection of such from the patent would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention in the expectation of adequate results absent any showing of surprising or unexpected results.

With re to applicants limitation that the EVOH is in the form of particles, a dispersed phase of polymer in a continuous phase of another polymer would read on such a limitation. The above secondary references disclose that compatibilized mixtures of polymers contain dispersed phases of polymer in a continuous phase (note Allcock at

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the paragraph bridging columns 1 and 2) and with re to applicants particle diameters, these fall within the ranges of domain sizes for compatibilized polymer blends as set out in the secondary references and as the primary reference discloses compatibilized polymer blends such sizes would reasonably appear to be inherent in the references, or at the least be assumed to be an inherent characteristic of the primary reference as well as that of the claims. Furthermore as the secondary references disclose that compatibilization is achieved by dispersion of incompatible phases as very small domains (as opposed to large ones exhibiting macrophase separation), to confer the domain sizes of the secondary references on the primary reference would have been obvious to a practitioner having an ordinary skill in the art to achieve compatibilized blend absent any showing of surprising or unexpected results.

With re to applicants L/D ratio, this limitation has little meaning as set out above in the rejection under 35 USC 112, second paragraph. However Mehra et al. discloses that the shape of the domains in compatibilized blends is not critical and in any case it is not clear that applicants ratio is even an average number and could even pertain to the presence of a single domain amount of millions in an entire composition and hence would be almost unavoidably formed. In any case choice of applicants particle (or domain size) would have been obvious to practitioner having an ordinary skill in the art at the time of the invention in the expectation of adequate results given Mehra's implication that almost any shape will work absent any showing of surprising or unexpected results.

Applicant's arguments filed 9-29-06 have been fully considered but they are not persuasive. Masuda has been withdrawn based on applicants' amendment.

Applicants claims do not exclude terminal modification from their block copolymer. With re to applicants allegation of unexpected results based on their specification data, unexpected results must be with the closest prior art (in the instant case, Shiraki) and applicants have presented no data showing examples according to Shiraki and examples according to the invention which vary only by factors by which the claims differ from Shiraki. Applicants argue that unexpected results comparative to non prior art examples are more probative of unexpected results than comparisons to prior art in cases where comparative examples are closer that the prior art. However the data which applicants discuss in their remarks for the most part delete claimed features altogether (such as modification of the block copolymer) and as such are no better than the prior art example 80 which only leaves out softener. Secondly, applicants data appears to demonstrate (although not comparatively to the closest prior art) that increasing ethylene vinylalcohol increases gas barrier properties. However, EVOH is a known gas barrier polymer and it is not unexpected that gas barrier properties increase when increasing the amount. With re to examples in which the amount of softener is increased, it is also not unexpected that gas barrier properties would become less favorable as lowed glass transition results in lowered gas barrier properties and plasticizers generally lower glass transition. With rte to allegations of unexpected results based on the amount of polyolefin, the claims do not require the presence of polyolefin

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and applicants alleged results are therefore not commensurate in scope to the claims. Shiraki requires a modified block copolymer and therefore it is immaterial that applicants may have discovered that modifying their block copolymer leads to unexpected results. With re to those (dependent claims) which do recite the presence of polyolefin, increasing the amount of polyolefin at the expense of the amount of plasticizer would be expected to lower flexibility as plasticizer generally flexibilizes macromolecular compositions .

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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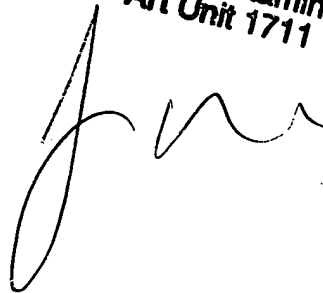
Any inquiry concerning this communication should be directed to Jeffrey C. Mullis
at telephone number 571 272 1075, M-F, 9-5.

Jeffrey C. Mullis
J Mullis
Art Unit 1711

JCM

11-6-06

Jeffrey Mullis
Primary Examiner
Art Unit 1711

A handwritten signature in black ink, appearing to be 'Jm', located below the printed name and title of Jeffrey Mullis.